

Amendments to the Claims

1-40. (Canceled).

41. (Currently amended) A signal encoding apparatus comprising:

means for generating information; and

means for formatting the information into a data structure;

wherein the data structure has an area containing an audio title set, the audio title set having audio packs, the audio packs including data representing a multi-channel digital audio signal resulting from steps including (1) quantizing a first original audio signal at a first sampling frequency, (2) quantizing a second original audio signal into a quantization-resultant audio signal at a second sampling frequency, and (3) subjecting the quantization-resultant audio signal to a bit shift, the first original audio signal being in a first channel group having multiple channels, the second original audio signal being in a second channel group having multiple channels, the first sampling frequency being assigned to each of the channels in the first channel group, the second sampling frequency being assigned to each of the channels in the second channel group, the bit shift having a quantity common to the channels in the second channel group;

the audio ~~title set~~ packs including data representing the first sampling frequency and the second sampling frequency, data representing the quantity of the bit shift and channel assignment information for identifying the channels in the first channel group and the channels in the second channel group, and further including a down-mix mode information for assigning whether or not inhibiting down-mix stereo output from the multi-channel digital audio signal.

42. (Previously presented) An apparatus for decoding the digital audio signal encoded by a signal encoding apparatus of claim 41, the multi-channel audio signal being in the first channel group and the second channel group, the apparatus comprising:

means for generating the data representing the first sampling frequency and the second sampling frequency, the data representing the quantity of the bit shift, and the

channel assignment information for identifying the channels in the first channel group and the channels in the second channel group;

means for decoding the digital audio signal in the first channel group and the second channel group in response to the first sampling frequency, the second sampling frequency, the quantity of the bit shift, the channel assignment information and the down-mix mode information for assigning whether or not inhibiting down-mix stereo output from the multi-channel digital audio signal; and

down-mixing permitting means for permitting down-mixed stereo output from the multi-channel digital audio signal when said decoded down-mix mode information is not inhibiting down-mixed stereo output from the multi-channel digital audio signal.

43. (Previously presented) A player for reproducing audio contents from the digital signal encoded by a signal encoding apparatus of claim 41, the multi-channel audio signal in the first channel group and the second channel group, the player comprising:

means for generating the data representing the first sampling frequency and the second sampling frequency, the data representing the quantity of the bit shift, and the channel assignment information for identifying the channels in the first channel group and the channels in the second channel group;

means for decoding the digital audio signal in the first channel group and the second channel group in response to the first sampling frequency, the second sampling frequency, the quantity of the bit shift, ~~and~~ the channel assignment information and the down-mix mode information for assigning whether or not inhibiting down-mix stereo output from the multi-channel digital audio signal; and

down-mixing permitting means for permitting down-mixed stereo output from the multi-channel digital audio signal when said decoded down-mix mode information is not inhibiting down-mixed stereo output from the multi-channel digital audio signal.